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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/055,650
Filing Date: January 22, 2002
Appellant(s): TRAVERSAT ET AL.

Robert C. Kowert
Reg. No. 39,255
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed August 25, 2008 appealing from the Office action mailed March 3, 2008.

(1) Real Party in Interest

A statement identifying by name the real party of interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

US Patent No. 5,517,622, Ivanoff et al (Previously cited)

US Patent No. 5,768,527, Zhu et al (Previously cited)

US Patent No. 5,878,056, Black et al (Previously cited)

US Patent No. 5,931,916, Barker et al (Previously cited)

US Patent No. 6,105,064, Davis et al (Previously cited)

US Patent No. 6,212,558, Antur et al (Previously cited)

US Publication No. 2002/0035594, Dreke et al (Previously cited)

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3, 5-7, 11-15, 18, 21-22, 25-27, 29-31, 35-40, 43, 45-47, 49-51, 55-60, and 63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Davis et al. US Patent #6,105,064 (Davis hereinafter), in view of Dreke et al. US Publication #2002/0035594 (Dreke hereinafter) and Black et al. US Patent #5,878,056 (Black hereinafter).

As per claim 1, Davis teaches substantially the invention as claimed including a method, system, and an article of manufacture for dynamically adjusting windows in a peer computing system, Davis's teachings comprising:

a plurality of peer nodes operable to couple to a network (col. 8, lines 21-24. Peer nodes.), wherein each of the plurality of peer nodes comprises one or more network interfaces; wherein each network interface is configured to communicate over the network in accordance with at least one or more network transport protocols (col. 9, lines 5-8. Endnodes establish network communication session. Col. 5, lines 40-44. Protocol for controlling data packets.);

wherein the plurality of peer nodes is configured to implement a peer-to-peer environment on the network according to a peer-to-peer platform comprising one or more peer-to-per platform protocols (col. 8, lines 21-24. Peer-to-peer network.) for enabling the plurality of peer nodes to discover each other, communicate with each other; and share content in the peer-to-peer environment (col. 75, lines 3-5. Sending endnode request connection with receiving endnode. col. 9, lines 1-8, 23-34. Establish connection for sending data.);

wherein one of the plurality of peer nodes is configured to:

establish a communications channel between a network interface of the peer node and a network interface of another of the plurality of peer nodes(col. 9, lines 5-8. Endnodes establish network communication session.);

transmit messages to the other peer node over the communications channel (col. 9, lines 25-28; col. 59, lines 1-3. Transmits data.);

receive acknowledgement that one or more of the transmitted messages have been received by the other peer node (col. 59, lines 1-3. Acknowledges packets.); and

retransmit messages not acknowledged as received by the other peer node to the other peer node on the communications channel (col. 73, lines 44-47. Unacknowledged packets are retransmitted.).

Davis teaches substantial features of the claimed invention including said establishing, said transmitting, said receiving, and said retransmitting in a peer-to-peer environment (peer-to-peer platform protocol). Davis does not specifically teach to discover comprising of obtaining an address for each

discovered peer node and that the one or more peer-to-peer platform protocols are distinct from the at least one network transport protocols.

Dreke teaches of a peer obtaining IP addresses of interested peers and peers interested in the peer (paragraph 0017).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings for the peer-to-peer protocols for enabling peer nodes to discover each other as taught by Davis to comprise obtaining the IP addresses of other peers as taught by Dreke. The motivation for the suggested combination is that Dreke's teachings would provide an improvement to Davis' teachings by enabling peer nodes to receive contact information including last known information of other peer nodes in order to allow the peer nodes to communicate with other peer nodes (Paragraphs 0018-0019).

Davis and Dreke still do not specifically teach that the communicating in the at least one of the one or more peer-to-peer platform protocols is performed separately from the at least one network transport protocols.

Black teaches of implementing a messaging system that is independent of transport protocols (col. 10, lines 63-67).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings for the peer-to-peer protocols as taught by the suggested system to be implemented as a messaging protocol that is independent of transport layer as taught by Black. The motivation for the suggested combination is that Black's teaching would provide an improvement to the suggested system by allowing the specific messaging scheme in the suggested system to support different transport protocol (col. 10, lines 63-67).

As per claims 25 and 45, Davis teaches substantially the invention as claimed including a method, system and a computer-readable storage medium for dynamically adjusting windows in a peer computing system, Davis's teachings comprising:

a plurality of peer nodes operable to couple to a network (col. 8, lines 21-24. Peer nodes.), wherein each of the plurality of peer nodes comprises one or more network interfaces; wherein each network interface is configured to communicate over the network in accordance with at least one or more network transport protocols (col. 9, lines 5-8. Endnodes establish network communication session. Col. 5, lines 40-44. Protocol for controlling data packets.);

wherein the plurality of peer nodes is configured to implement a peer-to-peer environment on the network according to a peer-to-peer platform comprising one or more peer-to-per platform protocols (col. 8, lines 21-24. Peer-to-peer network.) for enabling the plurality of peer nodes to discover each other, communicate with each other; and share content in the peer-to-peer environment (col. 75, lines 3-5. Sending endnode request connection with receiving endnode. col. 9, lines 1-8, 23-34. Establish connection for sending data.);

wherein one of the plurality of peer nodes is configured to:

establish a communications channel between a network interface of the peer node and a network interface of another of the plurality of peer nodes(col. 9, lines 5-8. Endnodes establish network communication session.);

transmit messages to the other peer node over the communications channel (col. 9, lines 25-28; col. 59, lines 1-3. Transmits data.);

receive acknowledgement that one or more of the transmitted messages have been received by the other peer node (col. 59, lines 1-3. Acknowledges packets.); and

retransmit messages not acknowledged as received by the other peer node to the other peer node on the communications channel (col. 73, lines 44-47. Unacknowledged packets are retransmitted.).

Davis teaches substantial features of the claimed invention including said establishing, said transmitting, said receiving, and said retransmitting in a peer-to-peer environment (peer-to-peer protocols). Davis does not specifically teach to discover comprising of obtaining an address for each discovered peer node and that the at least one of the one or more peer-to-peer platform protocols is distinct from any underlying network transport protocols.

Dreke teaches of a peer obtaining IP addresses of interested peers and peers interested in the peer (paragraph 0017).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings for the peer-to-peer protocols for enabling peer nodes to discover each other as taught by Davis to comprise obtaining the IP addresses of other peers as taught by Dreke. The motivation for the suggested combination is that Dreke's teachings would provide an improvement to Davis' teachings by enabling peer nodes to receive contact information including last known information of other peer nodes in order to allow the peer nodes to communicate with other peer nodes (Paragraphs 0018-0019).

Davis and Dreke still do not specifically teach that the communicating in the at least one of the one or more peer-to-peer platform protocols is performed separately from the at least one network transport protocols.

Black teaches of implementing a messaging system that is independent of transport protocols (col. 10, lines 63-67).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings for the peer-to-peer protocols as taught by the suggested system to be implemented as a messaging protocol that is independent of transport layer as taught by Black. The

motivation for the suggested combination is that Black's teaching would provide an improvement to the suggested system by allowing the specific messaging scheme in the suggested system to support different transport protocol (col. 10, lines 63-67).

As per claims 2, 26, and 46, Davis teaches the invention in claims 1, 25, and 45, wherein, to transmit messages to the other peer node over the communications channel, the peer node is further configured to:

generate messages (col. 29, lines 54-60. Data is send. col. 10, line 9-20. Messages.);

buffer the messages, and after a window of N messages has been buffered, transmit the N messages to the other peer node over the communications channel, wherein N is an integer greater than one (col. 29, line 51-60. Window size is determined for transmission of packet. col. 49, line 61-col. 50, line 55. Data is buffered prior to transmission.).

As per claims 3, 27, and 47, Davis teaches the invention as recited in claims 2, 26, and 46, wherein the other peer node is configured to receive the transmitted messages, and after receiving M messages, transmit the acknowledgement to the peer node indicating that the M messages have been received, where M is a positive integer less than or equal to N (col. 30, lines 65-67; claim 14. Sends acknowledgments to the number of received packets. col. 59, lines 34-35. Acknowledges to packets received. col. 60, lines 39-43. Packet count set such that sending is not stopped.).

As per claims 5, 29, and 49, Davis teaches the invention as recited in claims 3, 27, and 47, wherein M is less than N (col. 30, lines 65-67. Acknowledge receipt of packets. col. 60, lines 39-43. Packet count set such that sending is not stopped.).

As per claims 6, 30, and 50, Davis teaches the invention as recited in claims 5, 29, and 49, wherein, to receive acknowledgement that one or more of the transmitted messages have been received by the other peer node, the peer node is further configured to receive the acknowledgement indicating that M messages have been received (col. 30, lines 65-67. Sends acknowledgement of packets received.), and wherein the peer node is further configured to:

shift the window in the buffer by M messages (col. 30, lines 65-67. Shift window by number of packets acknowledged.); and

transmit the messages in the shifted window to the other peer node over the communications channel (col. 29, lines 51-60. Send packets according to window size.).

As per claims 7, 31, and 51, Davis teaches the invention as recited in claims 6, 30, and 50, wherein the shifted window includes one or more messages previously transmitted to the other peer node and one or more messages not previously transmitted to the other peer node (col. 6, lines 21-25. Increase or decrease window size. col. 31, line 1-8. Changes window size and retransmits the packet. col. 29, lines 51-60. Send packets according to window size.).

As per claims 11, 35, and 55, Davis teaches the invention as recited in claims 1, 25, and 45, wherein each of the messages includes a sequence number for use in ordering the received messages on the other peer node (col. 2, lines 13-16. Packets are assigned sequence numbers. Receiver places data in original order.).

As per claims 12, 36, and 56, Davis teaches the invention as recited in claims 3, 27, and 47, wherein the peer node and the other peer node are further configured to:

monitor the reception and retransmission of the messages to determine reliability of the communications channel on the network (col. 30, lines 65-57. Receives acknowledgement of packets received. col. 32, lines 15-29. Examines results of through measurements, detects bandwidth.); and

adjust the values of M and N according to said reliability of the communications channel (col. 30, lines 65-67; col. 31, lines 1-3. Size of window is changed according to acknowledgements. col. 32, lines 18-22; col. 60, lines 36-39. Changes window size according to network conditions.).

As per claims 13, 37, and 57, Davis teaches the invention as recited in claims 12, 36, and 56 wherein, to adjust the values of M and N, the peer node and the other peer node are further configured to lower the values of M and N if said reliability of the communications channel is poor (col. 31, lines 61-63; col. 31, lines 1-7. Decrease window size if packets are lost.).

As per claims 14, 38, and 58, Davis teaches the invention as recited in claims 12, 36, and 56, wherein, to adjust the values of M and N, the peer node and other peer node are further configured to raise the values of M and N if said reliability of the communication channel is good (col. 26, lines 57-64; col. 30, lines 65-67. Increase window size according to acknowledgements.).

As per claims 15, 39, and 59, Davis teaches the invention as recited in claims 1, 25, and 45, wherein the other peer node is configured to (col. 8, lines 19-24. Any computer may function as a peer, and as a client and server. col. 8, lines 34-35. Different computer assume the sending and receiving roles.):

transmit other messages to the peer node over the communication channel (col. 59, lines 1-3. Transmits packets.);

receive acknowledgement that one or more of the transmitted other messages have been received by the peer node (col. 59, lines 1-3. Acknowledges packets.); and

retransmit messages not acknowledged as received by the peer node to the peer node on the communications channel (col. 73, lines 44-47. Unacknowledged packets are retransmitted.).

As per claims 18 and 40, Davis teaches the invention as recited in claims 1 and 25, wherein the communications channel passes through one or more relay peers, wherein the one or more relay peers are configured to receive the transmitted messages from the peer node and forward the messages to the other peer node (col. 8, lines 3-5. Server may configured as a networked peer. col. 8, lines 29-31. Server acts as an intermediate node between sending endnode and receiving endnode.).

As per claim 21, Davis teaches the system wherein any peer node in a plurality of peer nodes may communicate with each other (Col 8, lines 19-24), wherein a node transmit messages to a second computer and receive messages from a third computer (Col 8, lines 37-40). Davis also teaches of transmitting messages to peer nodes, receive acknowledgements that one or more the transmitted messages have been received; and retransmitting messages not acknowledged (See rejection to claim 1 above.). Davis does not specifically teach wherein one or more other of the plurality of peer nodes are configured to connect to the communications channel, wherein the peer node is further configured to: transmit messages to the one or more other peer nodes over the communications channel; receive acknowledgements that one or more of the transmitted messages have been received by the one or more other peer nodes; and retransmit messages not acknowledged as received by the one or more other peer nodes to the one or more other peer node on the communications channel.

However, it is well known in the art that a peer is capable of communicating with more than one peer in a peer-to-peer system and that peers may join a peer group. It would have been obvious to one of

ordinary skill in the art to modify the suggested system for the sending node to communicate with more than one receiving endnode, wherein communication involves transmitting messages, receiving acknowledgement, and retransmitting messages not acknowledged to the other peer node, which would increase the sharing of resources in a network.

As per claims 22, 43, and 63, Davis teaches the invention as recited in claims 1, 25, and 45, wherein the peer node is further configured to compare elapsed time since the messages were transmitted to a timeout limit and, if the elapsed time exceeds the timeout limit (col. 3, lines 35-36. Col 31, lines 27-38. Expiration of time-out period.), retransmit the messages to the other peer node over the communications channel (col. 73, lines 44-47. Retransmits unacknowledged packets.).

As per claim 60, Davis teaches the article of manufacture as recited in claim 45, wherein the software instructions are further executable to implement: configuring the peer node as a relay peer, wherein a communications channel between a third peer node of the plurality of peer nodes and the other peer node passes through the peer node; the relay peer node receiving messages transmitted from the third peer node to the other peer node; and forwarding the messages to the other peer node (col. 8, lines 1-5, 19-24. Server as networked peer. Any computer may also function as a peer. col. 8, lines 29-31. Server acts as intermediate node between sending and receiving endnodes.).

Claims 4, 8-10, 28, 32-34, 48, 52-54, are rejected under 35 U.S.C. 103(a) as being unpatentable over Davis, Dreke, and Black, in view of Barker et al, US Patent #5,931,916 (Barker hereinafter).

As per claims 4, 28, and 48, Davis does not specifically teach the invention as recited in claims 3, 27, and 47, wherein N is a positive even integer, and wherein M is equal N/2.

Barker teaches of a similar system of adjusting the window for the transmission of packets, wherein the receiver sends an acknowledgement after a certain number of messages in a sequence have been received (col. 6, lines 25-31, 63-66).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings to send an acknowledgement after a certain number of messages in a sequence have been received. The motivation for the suggested combination is that Barker's teachings would allow the sender endnode to transmit addition packets in response to the number of received packets and adjust the window size, thereby improving the transmission of packets without data loss. Davis and Barker do not explicitly teach the receiver endnode of receiving N/2 messages. However, since Barker teachings of transmitting an acknowledgement after a certain number or messages and Davis teaches of adjust window size and packet count in order to respond to network conditions, it would have been obvious to one of ordinary skill for the receiver endnode to transmit an acknowledgment after other numbers of messages including N/2 messages.

As per claims 8, 32, and 52, Davis teaches the invention as recited in claims 2, 26, and 46, wherein each of the messages includes a sequence number for use in ordering the received messages on the other peer node (col. 2, lines 13-16. Packets are assigned sequence numbers. Receiver places the data back in its original order.), and wherein the other peer node is configured to: receive the transmitted messages (col. 59, lines 34-36. Receives packet.). Davis also teaches of transmitting an acknowledgement to received messages (col. 73, lines 1-4). However, Davis does not explicitly teach that after receiving the first M messages in the sequence of N transmitted messages as indicated by the sequence numbers, transmit the acknowledgement to the peer node indicating that the first M messages have been received, wherein M is a positive integer less than N.

Barker teaches of adjusting the window for the transmission of packets comprising receiving first messages in the sequence of N transmitted messages as indicated by the sequence numbers, and transmitting an acknowledgement indicating that the first messages have received, wherein M is a positive integer less than N (col. 6, lines 65-67; col. 7, lines 18-19).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings to adjust the window for the transmission of packets comprising receiving first messages in the sequence of N transmitted messages as indicated by the sequence numbers and transmit an acknowledgement indicating that the first messages have received, wherein M is a positive integer less than N. The motivation for the suggested combination is that Barker's teachings would provide an improvement to the suggested system by allowing the sender endnode to adjust window size according to the received sequence and remove successfully transmitted packets from its queue or buffer.

As per claims 9, 33, and 53, Davis teaches the invention as recited in claims 2, 26, and 46, wherein each of the messages includes a sequence number for use in ordering the received messages on the other peer node (col. 2, lines 13-16. Packets are assigned sequence numbers. Receiver places the data back in its original order.), and wherein the other peer node is configured to: continue receiving the transmitted messages until the first M messages in the sequence of N transmitted messages as indicated by the sequence numbers are received (col. 6, lines 63-67. Sends acknowledgement due to the receipt of a certain number of packets. col. 73, lines 44-47. Packets are transmitted, and acknowledgement is send when the packets are received.) or a timeout limit from the time of initial receipt of one of the sequence of N transmitted messages is exceeded, wherein M is a positive integer less than N (col. 31, line 26-28. Expiration of time out period. col. 73, lines 44-47. Unacknowledged packets are retransmitted.). However, Davis does not specifically teach that if the first M messages in the sequence of N transmitted messages as indicated by the sequence numbers are received, transmit the acknowledgement to the peer

node indicating that a count of messages received in continuous sequence from a first message in the sequence of N transmitted messages is M; and if the timeout limit is exceeded before the first M messages in the sequence of N transmitted messages as indicated by the sequence numbers are received, transmit the acknowledgement to the peer node indicating the count of messages received in continuous sequence from the first message in the sequence of N transmitted messages, wherein the count of messages received in continuous sequence is less than M.

Barker teaches of adjusting the window for the transmission of packets, wherein if the first M messages in the sequence of N transmitted messages as indicated by the sequence numbers are received, transmit the acknowledgement to the peer node indicating that a count of messages received in continuous sequence from a first message in the sequence of N transmitted messages is M (col. 7, lines 16-29. Transmits acknowledgment of sequence of received datagram, e.g. 8.) and

if the timeout limit is exceeded before the first M messages in the sequence of N transmitted messages as indicated by the sequence numbers are received, transmit the acknowledgement to the peer node indicating the count of messages received in continuous sequence from the first message in the sequence of N transmitted messages, wherein the count of messages received in continuous sequence is less than M (col. 6, lines 59-66. If time out expires, transmit acknowledgement in respect to consecutively received sequence numbered datagram. The acknowledgement acknowledges all earlier sequenced numbered datagram.).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings to perform the methods of the above paragraph. The motivation for the suggested combination is that Barker's teachings would provide an improvement to the suggested system by allowing the sender endnode to adjust window size according to the received sequence, prevent retransmission of received sequence of packets, and allow the sender endnode to remove successfully transmitted packets from its queue or buffer.

As per claims 10, 34, and 54, Davis teaches the invention as recited in claims 9, 33, and 53, wherein, to receive acknowledgement that one or more of the transmitted messages have been received by the other peer node, the peer node is further configured to receive the acknowledgement indicating that the messages have been received (See rejection to claim 1 above.) However, Davis does not specifically teach the invention, wherein the peer node is further configured to: shift the window in the buffer by the count of messages received in continuous sequence; and transmit the messages in the shifted window to the other peer node over the communications channel.

Barker teaches of adjusting the window for the transmission of packets by setting the window based on the sequence of the datagram and transmitting packets based on the window (Col 6, line 59-Col 7, line 2; Col 13, lines 14-19).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings to adjust the window for the transmission of packets by setting the window based on the sequence of the datagram and transmitting packets based on the window. The motivation for the suggested combination is that Barker's teachings would provide an improvement to the suggested system by allowing the sender endnode to dynamically adjust window size according to the received sequence and improve the flow of traffic by providing highest throughput without dropping packets.

Claim 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Davis, Dreke, and Black, in view of Ivanoff, US Patent #5,517,622 (Ivanoff hereinafter).

As per claims 16, Davis teaches of transmitting messages to the other peer node, receiving the acknowledgement, and retransmitting the message not acknowledged as received (See rejection to claim

1). However, Davis does not specifically teach the peer node comprising an instance of a pipe service executable within the peer node to establish the communications channel.

Ivanoff teaches of peer-to-peer system (col. 7, lines 56-57; col. 10, lines 35-38), wherein the peer node comprises an instance of a pipe service to establish a connection (col. 60, lines 49-54; col. 61, lines 1-21).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings for a node to comprise an instance of a pipe service, which would provide different types of service to establish a connection with peer nodes and providing management of connections as taught by Ivanoff.

As per claim 17, Davis teaches a receiving endnode that receives the transmitted messages and transmits the acknowledgement to the peer node (See rejection to claim 1 above.) However, Davis does not specifically teach the system wherein the other peer node comprises another instance of the pipe service executable within the other peer node.

Ivanoff teaches of peer-to-peer system (col. 7, lines 56-57; col. 10, lines 35-38), wherein the peer node comprises an instance of a pipe service to establish a connection (col. 60, lines 49-54; col. 61, lines 1-21).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings for a node to comprise an instance of a pipe service, which would provide different types of service to establish a connection with peer nodes and providing management of connections as taught by Ivanoff.

Claims 19-20, 41-42, 61-62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Davis, Dreke, and Black, in view of Antur et al, US Patent #6,212,558 (Antur hereinafter).

As per claims 19-20, 41-42, 61-62, Davis teaches the invention wherein the communication channel passes through intermediate nodes such as router or a bridge (Col 8, lines 30-31). However, Davis does not specifically teach the invention, wherein the communications channel passes through one or more firewalls or one or more Network Address Translation (NAT) gateways.

Antur teaches of a system for implementing security policy, wherein Antur teaches of using network address translators (col. 3, lines 38-67), and firewalls (col. 3, lines 32-36; col. 6, lines 1-4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings to implement network address translator and firewall, which would improve security of the suggested system by preventing unwanted connections to peer nodes and keeping the IP addresses of peer nodes private from the rest of the network.

Claims 23-24, 44, and 64 are rejected under 35 U.S.C. 103(a) as being unpatentable over Davis, Dreke, and Black, in view of Zhu et al, US Patent #5,768,557 (Zhu hereinafter).

As per claims 23, 44, and 64, Davis teaches of assigning sequence numbers to packets to allow the receiver node to order the packets (col. 2, lines 12-16), and retransmitting packets when the receiving endnode does not receive the packets (col. 31, lines 1-3). However, Davis does not specifically teach the invention, wherein the peer node is further configured to: receive a request specifying one or more previously transmitted messages for retransmission by the peer node; and retransmit the specified one or more messages to the other peer node on the communications channel in response to the request.

Zhu teaches of receiving a request specifying previously transmitted messages for retransmission (col. 7, lines 44-49), and retransmitting the specified messages to the node (col. 7, lines 56-57).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings to receive a request specifying previously transmitted messages for retransmission. The motivation for the suggested combination is that Zhu's teachings would provide an improvement to the suggested system by providing improved QoS with respect to quality and delay (col. 3, lines 55-60) and allowing the receiver to request data that was not received or request data when previously received data contain errors.

As per claim 24, Davis teaches of transmitting packets that contain the sequence number for ordering the packets (col. 2, lines 12-16). However, Davis does not specifically teach the peer computing system, wherein the request specifies a sequence number for each of the one or more specified messages.

Zhu teaches a system for requesting retransmission of packets, wherein the request contains the sequence number of the lost packet (col. 7, lines 49-50).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings for the request to contain the sequence number. The motivation for the suggested combination is that Zhu's teachings would provide an improvement to the suggested system by providing improved QoS with respect to quality and delay (col. 3, lines 55-60) and allowing the receiver to request data that was not received or request data when previously received data contain errors.

(10) Response to Argument

Appellants argued that:

(1) The cited art fails to teach or suggest "wherein said establishing, said transmitting said receiving, and said retransmitting are performed according to at least one of the one or more peer-to-peer protocols and wherein said peer-to-peer platform protocols are distinct from the at least one network transport protocols" as recited in claim 1. Davis is directed to network transport layers and network

transport protocols. Appellants assert that there is nothing in Black that describes the “message format” and "safe movement protocol” as peer-to-peer protocols.

In response, Examiner respectfully disagrees that the cited art fails to teach or suggest the limitation. Davis teaches,

a) “A given computer may function both as a client 20 and as a server 16… A given computer may also function as a peer in a peer-to-peer network according to the present invention" (column 8, lines 19-23).

b) “the sending endnode 32 and the receiving endnode 34 contain software controlling a computer as a means for establishing a network communication session…” (column 9, lines 5-8).

c) “It is possible for the same service to set up several connections which can be used for sending different types of data, or sending data at different priorities between the endnodes.” (column 9, lines 25-28).

d) “During connection, an application on one endnode will register itself as a service, a second application on the same or another endnode asks to connect to that name and service type, and the embodiment sets up the connection." (column 10, lines 4-8)

e) “the receiving endnode 34 acknowledges each packet received but does not necessarily send one acknowledgement packet for each received packet and may delay in sending the acknowledgement (“ack”) (column 59, lines 34-37).

f) “The acks received and processed by the sending endnode 32 during an ack processing step 56. The processing ensures that unacknowledged packets will be retransmitted.” (column 73, lines 44-47).

According to the above passages, Davis teaches of endnodes operating as peers nodes in communication with each other in a peer-to-peer network (see above passage a) and thus peers in a peer-to-peer environment. Davis teaches the claim’s limitations of one of the peers performing said establishing (see passage above b), said transmitting (see passage above c), said receiving (see passage above e), and said retransmitting (see passage above f).

Regarding the limitation of “performing according to one or more peer-to-peer platform protocols”, the “peer-to-peer platforms protocol” is defined in the claim as protocols for “enabling the

plurality of peer nodes to discover each other, communicate with each other, and share content in the peer-to-peer environment, wherein to discover comprises obtaining an address for each discovered peer node." Davis teaches of peer nodes in a peer-to-peer network (see above passage a). As shown in passages b-c, the peer nodes establish a session and communicate with each other, and thus, Davis teaches the limitation of peers enabled to communicate with each other. By having established a session, it is essential that a peer node must have discovered another peer node by obtaining contact information regarding the other peer node in some manner, which would allow the peer node to identify and contact the another peer node. If peer nodes cannot discover each other, then a session between peer nodes would not be possible. Thus, Davis teaches the limitation that the peer nodes are enabled to discover each other. Davis also teaches of an endnode asking connection to a name and service type of a registered endnode (see passage d). By asking connection to the registered endnode, the asking endnode was enabled to identify and discover the registered endnode. Davis also teaches that the peer nodes also send content to each other (see passage c), and thus, Davis teaches the claim's limitation of peer nodes that are enabled to share content with each other.

Regarding the limitation of "obtaining an address for each discovered peer node", Davis teaches that the network on which the peer nodes communicate may be the Internet and/or use TCP (See Davis column 7, lines 57-63; column 51-55). Even though Davis teaches of peer nodes enabled to discover each other and communicate on an IP network, Davis was not explicit in teaching of obtaining an address for each discovered peer node. Therefore, Davis was combined with Dreke, wherein Dreke teaches,

g) "the list transmitted by Peer A includes Peer B and Peer C. In 302, IPIS 4 responds to Peer A's list by transmitting a list including the last known address, such as an IP addresses for Peer B and Peer C even though the IP address for Peer B is out of date" (Paragraph 0017).

Dreke teaches of a peer node enabled to obtaining an address for each discovered peer node (See above passage g).

Davis teaches of peer nodes that perform “said establishing, said transmitting said receiving, and said retransmitting”, and Davis in combination with Dreke teaches all of the limitations of the claim's peer-to-peer protocols. Therefore, Davis and Dreke teach of peer nodes that perform “said establishing, said transmitting said receiving, and said retransmitting” according to at least one of the one or more peer-to-peer protocols. Davis and Dreke do not specifically teach that the peer-to-peer platform protocols are distinct from the at least one network transport protocols. However, Black teaches of a protocol distinct from the at least one network transport protocols. Black teaches,

h) “The communication of messages between queue managers is carried out by MCAs working in pairs across specific channels: one sender 180 and one receiver 190’.” (column 10, lines 33-34)

i) “The message format and the safe movement protocol are transport layer independent so that MCAs can support different transport protocols on different channels.” (column 10, lines 64-67).

Black teaches of using a messaging protocol that is distinct from network transport protocols (See above passages h and i), and thus, the suggested system of Davis and Dreke was combined with Black. Appellants asserted that there is nothing in Black that describes the claimed peer-to-peer protocols. However, the combination of Davis and Dreke teaches the claimed peer-to-peer protocols. Therefore, in response to Applicant’s assertion that Black does not describe the claimed peer-to-peer protocol, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

(2) None of the cited references teach the peer-to-peer protocols of claim 1 and therefore the combination of references cannot teach that such protocols are distinct from network transport protocols.

In response, Examiner respectfully disagrees that none of the cited references teach the peer-to-peer protocols of claim 1. Claim 1 defines “peer-to-peer platform protocols” as protocols for “enabling

the plurality of peer nodes to discover each other, communicate with each other, and share content in the peer-to-peer environment, wherein to discover comprises obtaining an address for each discovered peer node." Davis teaches of peer nodes in a peer-to-peer environment (see above passage a). Davis teaches that the peer nodes establish a session and communicate with each other (see above passages b-c) and thus are enabled to communicate with each other. By establishing a session, a peer node must be enabled to discovery each other by obtaining information regarding the other peer node in order to contact another peer node. Davis also teaches of an endnode asking connection to a name and service type of a registered endnode (see passage d). By asking connection to the registered endnode, the asking endnode was enabled to identify and discover the registered endnode. Davis also teaches that the peer nodes are send content to each other (see passage c) and thus are enabled to share content. Regarding the limitation of "obtaining an address for each discovered peer node", Davis teaches of peers nodes that are enabled to discover each other on the Internet or a TCP network (column 7, lines 57-63; column 51-55), which inherently involves use of the IP address for connections, but Davis was not explicit in teaching of obtaining an address for each discovered peer node. Therefore, Davis was combined with Dreke, wherein Dreke teaches of a peer node enabled to obtaining an address for each discovered peer node (See passage vii above).

It is essential that Davis and Dreke's teachings for enabling discovering, communicating, and sharing between peer nodes in a peer-to-peer network comprises the use of protocols, i.e. rules for discovering, communicating, and sharing. The protocols used by the peer nodes are considered as the claimed peer-to-peer protocols, and the combination of Davis and Dreke teaches every limitation of the peer-to-peer protocols as defined in claim 1. In response to argument (1), it was also shown that Davis teaches of peer nodes that perform "said establishing, said transmitting, said receiving, and retransmitting." Since the cited references teach all of the features of the claimed peer-to-peer protocol, the cited references do teach the specific peer-to-peer protocols of claim 1. It is also noted that

Applicant's specification also does not provide a clear and explicit definition of peer-to-peer protocols to further control the interpretation of the term, and therefore, the claimed peer-to-peer protocols is not further defined than as defined in the claims. The claimed peer-to-peer protocols as defined in the claims are given the broadest reasonable interpretation in light of the specification.

(3) The Examiner has not provided a proper reason to combine the references. Davis is directed to techniques to provide an efficient and reliable network transport layer. Therefore, it does not make sense to implement the teachings of Davis independent of such transport protocols.

In response, Examiner respectfully disagrees that the Examiner has not provided a proper reason to combine the references. As shown in response to arguments (1) and (2), the combination of Davis and Dreke teaches the features of "said establishing, said transmitting said receiving, and said retransmitting performing according to at least one of the one or more peer-to-peer protocols". Davis does not specifically teach that the peer-to-peer protocols are distinct from the at least one network transport protocols.

Examiner contends that performing well known techniques in one type of protocol in a different protocol is not novel. The MPEP also has set forth exemplary rationales for such a combination of references to support a conclusion of obviousness. In addition to teaching-suggest-motivation (TMS) rationale, the rationales that support the combination of Davis and Black includes 1) Use of known technique to improve similar devices (methods, or products) in the same way; 2) Applying a known technique to a known device (method, or product) ready for improvement to yield predictable results; and 3) Simple substitution of one known element for another to obtain predictable results.

Therefore, although the peer-to-peer protocol as taught by the suggested system of Davis and Dreke may involve the use of the transport protocol, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings for the peer-to-peer network

protocol as taught by the suggested system to be implemented as a messaging protocol that is distinct from network transport protocols as taught by Black, which would similarly improve the suggested system by allowing the suggested peer-to-peer protocols to operate on different transport protocols (See Black, column 10, lines 64-67). Furthermore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the known technique of implementing messaging that is distinct from network transport protocols as taught by Black to improve the peer-to-peer protocols of the suggested system such that the peer-to-peer protocols is distinct from the transport protocols, which would achieve the predictable result of enabling the peer-to-peer protocols of Davis and Dreke to support different transport protocols and not be limited to a single transport protocol. Lastly, it would have been obvious to one of ordinary skill in the art at the time the invention was made for the protocol on to which the peer-to-peer protocol is based as taught by Davis and Dreke to be substituted with a protocol that is distinct from network transport protocols as taught by Black such that the peer-to-peer protocol operates independent of the network transport protocols while still allowing "said establishing, said transmitting said receiving, and said retransmitting performing according to at least one of the one or more peer-to-peer protocols."

(4) The cited art fails to teach or suggest "wherein the plurality of peer nodes is configured to implement a peer-to-peer environment on the network according to a peer-to-peer platform comprising one or more peer-to-peer platform protocols. Appellants again assert that a computer may "function as a peer in a peer-to-peer network" without necessarily including a peer-to-peer platform comprising any of the specific peer-to-peer platforms protocols recited in claim 1. Examiner citation of Davis does not describe any of the specific limitations of a peer-to-peer protocol as recited in the claims.

In response, Examiner respectfully disagrees that the cited art do not teach the limitation. Davis teaches of peer nodes in a peer-to-peer network (see above passage a), and therefore, Davis clearly

teaches of a plurality of peer nodes implemented in a peer-to-peer environment. As explained in response to arguments (1) and (2), Davis and Dreke teach the claimed peer-to-peer protocols. Therefore, the computers of Davis and Black do not merely function as peers in a peer-to-peer network as argued by Appellants. The peer nodes in the suggested system of Davis and Dreke do implement the specific peer-to-peer platform protocols recited in claim 1. The combination of the cited arts does include and describe all of the specific limitations of the claimed peer-to-peer protocol.

(5) Davis, Dreke, and Black fails to teach or suggest any peer-to-peer platform protocols for enabling peers to discover each other, wherein to discover comprises obtaining an address for each discovered peer node. Dreke describes a mechanism to establish a connection two known peers but does not describe a peer-to-peer protocol for enabling peer nodes to discover each other. There are many ways that a device may obtain an address for another device that do not involve a peer-to-peer platform protocol, much less one that is distinct from network transport protocols.

In response, Examiner respectfully disagrees that Davis, Dreke, and Black fails to teach or suggest the limitation. Davis teaches that the peer nodes establish a session and communicate with each other (see above passages b-c). By having established a session, it is essential that a peer node must have discovered another peer node by obtaining contact information regarding the other peer node in some manner, which would allow the peer node to identify and contact the another peer node. Therefore, the peer nodes are enabled to discover each other. Davis also teaches of an endnode asking connection to a name and service type of a registered endnode (see passage iv). By asking connection to the registered endnode, the asking endnode was enabled to identify another node to which the asking endnode desires connection. Thus, the endnode is enabled to discover the registered endnode. Appellants argued that Black does not teach of peer-to-peer protocols for enabling peers to discover each other. However, Davis clearly teaches of peer-to-peer protocols for enabling peers to discover each other. One cannot show

nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Regarding the limitation of "obtaining an address for each discovered peer node", Davis teaches of peers nodes that are enabled to discover each other on the Internet or a TCP network (column 7, lines 57-63; column 51-55), which inherently involves use of the IP address for connections, but Davis is not explicit in teaching of obtaining an address for each discovered peer node. Therefore, Davis was combined with Dreke, wherein Dreke teaches of a peer node enabled to obtain an address for each discovered peer node in a peer-to-peer environment (See passage vii above). The protocols used by peer nodes to obtain an address for each discovered peer node in a peer-to-peer environment is also considered as peer-to-peer protocols.

(6) The cited art fails to teach or suggest "wherein the other peer node is configured to receive transmitted messages, and after receiving M messages, transmit the acknowledgement to the peer node indicating that the M messages have been received, wherein M is a positive integer less than or equal to N" as recited in claim 3. Neither of the passages, column 30, lines 66-67 and column 59, lines 34-35, describe transmission of an acknowledgement indicating that M messages have been received. Claims 27 and 47 include limitations similar to those above regarding claim 3, and the arguments apply to the claims as well.

In response, the Examiner respectfully disagrees that the cited art fails to teach or suggest the limitation. Davis teaches,

j) "the sender 32 attempts to increase the send window size by the number of packets acknowledged by the ACK which it just received." (column 30, lines 65-67)

k) "The method of claim 1, further comprising the computer-implemented step of sending a plurality of acknowledgements in one packet from the receiving endnode to the sending

endnode to acknowledge receipt by the receiving endnode of a corresponding plurality of data packets. (column 83, claim 14).

l) "Each time the sending endnode 32 changes the current send window size during the adjusting step 62 it selects a new value for the acknowledgement update event and sends the new value to the receiving endnode 34. The value may be a time interval or a packet count." (column 60, lines 36-39)

m) "the receiving endnode uses occurrences of an acknowledgement update event, such as expiration of a time interval or receipt of a certain number of packets, to trigger the return of an ack to the sending endnode" (column 6, lines 63-67)

o) "In general, the receiving endnode 34 acknowledges each packet received but does not necessarily send one acknowledgment packet for each received packet and may delay in sending the acknowledgement ("ack")." (column 59, lines 34-39)

Davis teaches of sending an ACK (acknowledgement) that indicates the number of packets (M) acknowledged, i.e. received by a receiving endnode (see above passage j). This is further described in claim 14, wherein Davis teaches that a packet is sent to the sending endnode that includes a plurality of acknowledgements that corresponds to the number of plurality of data packets received (M) by the receiving endnode (see above passage k). According to Davis, the acknowledgement may be sent in response to a certain number of packets or a packet count, i.e. M (see above passage l and m) and that each packet received is acknowledged (see above passage o). After receiving a certain number of packets or equaling a packet count (M), the receiving endnode sends a packet comprising acknowledgements corresponding to the certain number of packets received or number of packets received according to the packet count. Therefore, Davis teaches of "wherein the other peer node is configured to receive transmitted messages, and after receiving M messages, transmit the acknowledgement to the peer node indicating that the M messages have been received."

Regarding the limitation of "wherein M is a positive integer less than or equal to N", to further clarify, Davis teaches that the value of the packet count is set such that the packet count would not stop sending of data (column 60, lines 39-43). This suggests that the packet count (M) is not greater than the window (N) since M greater than N would cause a stop in the transmission of packets. For instance if M

is three and N is two, the receiving endnode sends an acknowledgement when three packets are received. But since N is two, the sending endnode would only send two packets and does not send additional packets until the sending endnode receives an acknowledgement from the receiving endnode. Therefore, the receiving endnode only receives two packets and waits for the third packet to trigger the acknowledgement, but the third packet would not be sent since the window is two at the sending endnode. Therefore, Davis suggests the limitation of "wherein M is a positive integer less than or equal to N".

In addition, claim 2 defines N as an integer greater than one and claim 3 defines M is a positive integer less than or equal to N. Given the broadest reasonable interpretation, N may be considered as two, and M being less than N, M may be considered as one. Davis teaches,

> p) "The current send window size will not exceed the maximum send window size; two is used as an initial value in one embodiment but other send window sizes are also suitable... When data is ready to sent, the first two packets are placed on the network for transmission… Because two packets are now outstanding and the current send window is two, the window then closes." (column 5, lines 51-65).

Davis teaches that a window (N) may be two (See above passage o) and sending an acknowledgment for each, i.e. one, packet received (see above passage p). Since an acknowledgement is transmitted for each received packet, the acknowledgement indicates that one (M) message is received. , Davis teaches that the other peer node receives one transmitted message, and after receiving the one (M) message, the other peer node transmits an acknowledgement indicating that the one packet is received. And since the window is two (N), M is less than N. Therefore, Davis teaches "wherein the other peer node is configured to receive transmitted messages, and after receiving M messages, transmit the acknowledgement to the peer node indicating that the M messages have been received, wherein M is a positive integer less than or equal to N" as recited in claim 3. Since claims 27 and 47 include limitations similar to claim 3, Davis also teaches the limitations of claims 27 and 47.

(7) The cited art fails to teach or suggest the limitation of "wherein the shifted window includes one or more messages previously transmitted to the other peer node and one or more messages not previously transmitted to the other peer node" as recited in claim 7. Examiner cited column 30, lines 1-8 and column 29, lines 51-60 of Davis to teach the limitations. Appellant notes that column 30 does not include lines 1-8. Therefore, it is unclear as what the Examiner means to reference. Claims 31 and 51 include limitations similar to those above regarding claim 7, and the arguments apply to the claims as well.

In response, in the Office action dated 03/21/2008, under the rejection of claim 7, Examiner stated "col. 30, line 1-8. Change window size and retransmits the packet". The citation of column 30 was a typographical error, and the Examiner intended column 31, lines 1-8. However, the statement of "Change window size and retransmits the packet" still applies to column 31, lines 1-8, which describes of retransmitting a packet and adjusting a window size. Upon review of the reference Davis, it would have clear that the Examiner's statement corresponded to a description in the next column.

Regarding the limitation, Davis teaches,

q) "When the sending endnode receives an ack, it may increase or decrease its current send window size. Changes in the send window size are directed toward finding a best window size at which the highest packet throughput is achieved." (column 6, lines 21-25)

r) "In one embodiment two is used as an initial value for the current send window size, but other values are also suitable… The sending endnode 32 also responds to lost packets and congestion by decreasing the send window size." (column 29, lines 54-66)

s) "When the sender 32 receives notices that a packet was lost, and retransmits the packet, it attempts to decrease the send window size by one and readjust the best window size." (column 31, lines 1-3)

Davis' teaching is directed to the use of a window that indicates the packet(s) that are to be sent to a receiving endnode and adjusting the window according to network conditions. For instance, if the window is two, then two packets are placed on the network (see passage p above). Davis also teaches of adjusting the window in response to lost packets (see passage q and r above) and retransmitting a packet

(see passage s above). In response to the loss of a previously transmitted packet, the window is decreased, i.e. shifted, and the window of packet(s) to be sent includes the packet that needs to be retransmitted. Therefore, Davis teaches the limitation of “"wherein the shifted window includes one or more messages previously transmitted to the other peer node.”.

Regarding the limitation that "the shifted window includes one or more messages not previously transmitted to the other peer node”, Davis teaches that the window may be other suitable sizes besides two (see passages p and r above) and that a window size may be increased from two (see passage q). If a window is increased from two to three, and at a window of three, a packet is lost, then the window would decrease by one back to a window of two since Davis teaches that a lost packet will result in a decrease by one (see passage s). The current window of two would include the packet that needs to be retransmitted, i.e. previously transmitted, and the next packet to send to a receiving node. Thus, the adjusted window also includes a message not previously transmitted to the other peer node.

Therefore, Davis teaches the limitation of "wherein the shifted window includes one or more messages previously transmitted to the other peer node and one or more messages not previously transmitted to the other peer node” as recited in claim 7. Since claims 31 and 51 include limitations similar to claim 7, Davis also teaches the limitations of claims 31 and 51.

(8) The cited art fails to teach or suggest “wherein the peer node and the other peer are further configured to: monitor reception and retransmission of messages to determine reliability of the communications channel on the network; and adjust how values of M and N according to said reliability of the communications channel" as recited in claim 12 There is nothing that describes determining reliability of a communication channel or adjusting send or receive window sizes according to such a determination. Claims 36 and 56 include limitations similar to those above regarding claim 12, and the arguments apply to the claims as well. Claims 13-14, 37-38, and 57-58 are dependent on the determined

reliability, and since the cited art does not teach or suggest such a determination, the cited art does not teach or suggest the features of claims 13-14, 37-38, and 57-58.

In response, Examiner respectfully disagrees that the cited art fails to teach or suggest the limitation. Davis teaches,

t) "Unlike the static or manually configured maximum send window size used in TCP, the best window size of the present method is determined dynamically by probing different window sizes and examining the resulting throughput measurements to determine which window size is best." (column 32, lines 16-21).

Davis teaches of adjusting a window by examining throughput measurements (See above passage t). Regarding adjusting a window size (N), Davis further teaches,

u) "If an ACK is received indicating that the receiver 34 is experiencing congestion, the sender 32 attempts to decrease the send window size by two and readjusts the best window… the sender 32 attempts to increase the send window size by the number of packets acknowledged by the ACK which it just received". (column 30, lines 61-67)

v) "When the sender 32 receives notices that a packet was lost, and retransmits the packet, it attempts to decrease the send window size by one and readjust the best window size." (column 31, lines 1-3)

w) "When the sending endnode 32 receives an ack, it may increase its current send window size during an ack processing step 56. Changes in the send window size are directed toward finding a best window size at which the highest packet throughput is achieved, given the condition of the network 10." (column 59, lines 48-53)

Davis teaches of an adjustable the window (N) (see above passage t), wherein the window is adjusted based on a determination of whether transmitted packets are being received by a receiving endnode (see above passage u). When a sender determines that there is congestion, retransmits packets, and/or determines that packet(s) are lost, the window size is decreased (see above passages u and v). When a sender receives acknowledgement(s) corresponding to transmitted packets, the window size is increased (see above passage w). Therefore, by determining whether or not packets are successfully transmitted to the receiving endnode, the sending endnode is determining a reliability of the network, and the increasing or decreasing of the window is based on the reliability.

Regarding the adjustment of M, Davis further teaches,

x) "In various embodiments according to the invention, the receiving endnode 34 uses one or more different conditions during an acknowledging step 54 to trigger the return of an ack to the sending endnode 32."(column 59, lines 37-41)

y) "Each time the sending endnode 32 changes the current send window size during the adjusting step 62 it selects a new value for the acknowledgement update event and sends the new value to the receiving endnode 34. The value may be a time interval or a packet count." (column 60, lines 36-39)

Davis teaches that the packet count (M) for the triggering of acknowledgement(s) is adjusted when the window size adjusts (see above passages x and y). Since claims 36 and 56 include limitations similar to claim 12, Davis also teaches the limitations of claims 36 and 56. Davis also teaches of adjusting window sizes based on determined reliability and does teach the features of claims 13-14, 37-38, and 57-58 (see above passages u-w).

(9) The cited art clearly fails to teach or suggest "wherein N is a positive even integer, and wherein M is equal to N/2" as recited in claim 4. The Examiner's reason is not supported by any evidence of record and is thus found only in hindsight. There is nothing in the evidence of record teaching or suggest any reason (or benefit) for the number of messages to have the specific limitation recited in claim 4, wherein M is equal to N/2. Claims 28 and 48 include limitations similar to those above regarding claim 4, and the arguments apply to the claims as well.

In response, Davis does not explicitly teach the limitation of "wherein N is a positive even integer, and wherein M is equal to N/2". However, Davis teaches adjusting a window (N) for sending packets and packet count (M) that triggers the transmission of an acknowledgement (see above passages w and y) for the benefit of enabling efficient responses to changing network conditions (Davis column 5, lines 26-28). Barker teaches of receiving a certain number of messages before sending an acknowledgement (column 6, lines 25-31). Therefore, it would have been obvious to one of ordinary skill

in the art that the certain number of messages (M) to trigger sending of acknowledgement may correspond to N/2 if changing network conditions causes such a correspondence, such that the correspondence allows optimum transmission of packets. Since claims 28 and 48 include limitations similar to claim 4, Davis and Barker also suggests the limitations of claims 28 and 48.

(10) The cited art fails to teach or suggest "wherein the other peer node is configured to: continue receiving the transmitted messages until the first M messages in the sequence of N transmitted messages as indicated by the sequence numbers are received... wherein M is a positive integer less than N" as recited in claim 9. The passages cited by the Examiner, column 6, lines 63-67 and column 73, lines 44-47" do not teach or suggest anything about continuing to receive packets until a particular number of packets. Claims 33 and 53 include limitations similar to those above regarding claim 9, and the arguments apply to the claims as well.

In response, Examiner respectfully disagrees that the cited art fails to teach or suggest the limitation. Davis teaches,

z) "the receiving endnode uses occurrences of an acknowledgement update event, such as expiration of a time interval or receipt of a certain number of packets, to trigger the return of an ack to the sending endnode" (column 6, lines 63-67)

aa) "the receiving endnode 34 uses one or more different conditions during an acknowledging step 54 to trigger the return of an ack to the sending endnode 32."(column 59, lines 37-41)

bb) "Each time the sending endnode 32 changes the current send window size during the adjusting step 62 it selects a new value for the acknowledgement update event and sends the new value to the receiving endnode 34. The value may be a time interval or a packet count." (column 60, lines 36-39)

Davis teaches of a receiving endnode that receives a certain number of packets or a packet count specified by a sending endnode that triggers the sending of an acknowledgement (See above passages z, aa, and bb). Therefore, the receiving endnode, i.e. the other peer node, continues to receive the

transmitted messages and does not send the acknowledgement until receiving the certain number of packets or packets according to packet count, i.e. the M messages in a sequence of N messages.

Furthermore, Davis teaches,

cc) "The value is selected such that the sending endnode 32 will not stop sending data packets due to excessive delay by the receiving endnode 34 in acknowledging received packets." (column 60, lines 39-43).

According to the above passage cc, Davis suggests of a packet count (M) being an integer less than a window size (N). The reason for this is a packet count at least equaling a window size would introduce significant delays and cause the sending endnode to stop sending packets, which Davis teaches does not happen in his invention. If the packet count was at least equal to the window size, the sending endnode must wait for acknowledgement of all packets sent by the sending endnode in order to send additional packets. At the same time, the receiving endnode must wait to receive all sent packets in order to send the acknowledgement. The sending endnode experiences a delay between the last packet sent by the sending endnode and reception of the acknowledgement. For instance, if the window size is five and the packet count is five. After the sending endnode sends the five packets, the sending endnodes stops sending additional packets until the sending endnode receives an acknowledgement sent by the receiving endnode. On the receiving side, the receiving endnode waits for five packets, and the acknowledgement would not be sent until the receiving endnode receives the five packets. While the receiving endnode receives the fifth packet, the sending node has stopped sending additional packets until an acknowledgement is received.

Furthermore, claim 2 defines N as an integer greater than one, and claim 9 defines M is a positive integer less than N. Given the broadest reasonable interpretation, N may be considered as two, and M being less than N, M may be considered as one. Davis teaches that a window (N) may be two (See above passages p and r) and sending an acknowledgment for each packet received (see above passage o). Therefore, Davis teaches of receiving one (M) message until sending an acknowledgement in a sequence

of two (N) messages, and since M is one and N being two, Davis suggests that M is a positive integer less than N. Since claims 33 and 53 include limitations similar to claim 9, Davis and Barker also suggests the limitations of claims 33 and 53.

(11) Appellants note that U.S. Patent No. 5,768,557 is not a patent issued to an inventor “Zhu” and assert that this patent does not teach or teach the limitations recited in claim 23, 24, 44, and 64.

In response, the citation of US Patent No. 5,768,557 is a typographical error and should read US Patent No. 5,768,527. However, the inventor "Zhu" is correct and the correct patent number, US Patent No. 5,768,527, corresponding to the inventor "Zhu" was listed on the PTO-892 "Notice of References Cited" mailed with the Office action on 03/21/2008. Furthermore, the PTO-892 mailed on 09/21/2007, 04/09/2007, and 10/27/2006 also listed the inventor “Zhu” and the correct corresponding US Patent No. as 5,768,527. Therefore, Examiner contends that a typographical error on the Office action should not have prevented Appellants in understanding the rejection of claims 23, 24, 44, and 64. It is noted that the Examiner has corrected the US Patent No. for the inventor “Zhu” under “Grounds of Rejection" in the Examiner’s Answer.

Claim 23 comprises the limitation,

> “receive a request specifying one or more previously transmitted messages for retransmission by the peer node; and retransmit the specified one or more messages to the other peer node on the communication in response to the request.”

Claim 24 comprises the limitation,

> “wherein request specifies a sequence number for each of the one or more specified messages, wherein the sequence numbers are for use in ordering the received messages on the other peer node.”

Claim 44 comprises the limitation,

> "the peer node receiving a request specifying one or more previously transmitted messages for retransmission by the peer node; and the peer node retransmitting the specified one or more messages to the other peer node on the communications channel in response to the request."

Zhu teaches,

> dd) "the feedback message generator (314) sends a retransmission request message to the remote server. The retransmission request includes at least the sequence number of the lost packet… If the retransmitted packet is received by the packet processor (304) prior to the expiration of the corresponding timer, the timer will be cleared." (col. 7, lines 44-49, 56-67)

Davis teaches of communication between a peer node and an other peer node but does not specifically teach the rest of the limitations of claims 23, 24, 44, and 64. However, Zhu clearly teaches of a request a specifying a previously transmitted message by requesting retransmission of a packet with a sequence number (see above passage dd). Zhu also teaches of retransmitting the message to a node since the packet processor has received the retransmitted packet in response to the request for retransmission. Therefore, the combination of Davis and Zhu teaches the limitations of claims 23 and 44. Claim 64 comprises substantially the same limitations as claim 44 and is unpatentable for the same reasons as claim 44.

Regarding claim 24, Davis teaches of sending packets with sequence numbers for ordering the packets (col. 2, lines 12-16). Zhu explicitly teaches of the request specifying a sequence number for each of the specified message (see above passage dd). Zhu, on column 4, lines 60-64, further teaches that the sequence numbers are used to determine whether packets have arrived in sequence. The sequence number of Zhu is used for ordering received messages. Therefore, the combination of Davis and Zhu teaches the limitations of claim 24.

(12) Appellants traverse the rejection of claims 8-10, 16-17, 19-20, 23-24, 32-34, 41-42, 44, 52-54, 61-62, and 64 for at least the reasons presented above regarding the claims from which these claims depend.

In response, Appellants have not introduced any new reasons for the allowability of the claims. Therefore, the Examiner incorporates the above responses to Appellants' arguments for the rejection of the claims, and the dependent claims are not allowable for similar reasons above regarding the independent claims.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Joshua Joo /JJ/

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